MasterSwitch *plus*

Expansion Unit

AP9225EXP

Installation and Quick Start Manual

APC®

APC MasterSwitch Plus

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APC MasterSwitch Plus

Setup of the MasterSwitch Plus Expansion Unit

Introduction

Overview

This document provides installation and configuration instructions for the MasterSwitch Plus expansion unit (AP9225EXP) when you are using it without the AP9225 model. Topics covered in this document are:

- connecting a single unit for on-demand-only use
- connecting multiple units for on-demand-only use
- connecting a single unit for unattended shutdown
- connecting multiple units for unattended shutdown
- setting the addresses of multiple units

After you have completed the steps in this document that are required for your needs, no further configuration of MasterSwitch Plus is required. The remaining MasterSwitch Plus properties are pre-configured at the factory. However, these properties may not be correct for your application. See "Planning Your Configuration" in the chapter titled "Introduction" in the User Guide for details on configuring the MasterSwitch Plus for your application.

Configuration options

The MasterSwitch Plus expansion unit can be connected in different configurations, depending on your needs.

IF you want to use...	...THEN see...	...on page...
only the on-demand features	"Connecting for On-Demand-Only Use"	3
the unattended shutdown features	"Connecting for Unattended Shutdown"	6

Table 1: Choosing a Configuration

Continued on next page

Introduction continued

Choosing additional cables

Table 2 lists some of the simple-signaling cables for use with the systems supported by MasterSwitch Plus. For a complete listing of available cables, visit the APC Web site at http://www.apcc.com and enter keyword **cables** in the search box. See the document entitled *UPS Accessories—Cable Interface Kits—Product Information*.

IF you want to connect a Basic port to a(n)...	...THEN order...	APC part number
Windows or NetWare server	UPS LAN Manager Cable	940-0020
UNIX server	UNIX Basic Signaling Cable	AP9823
IBM AS/400	AS/400 Cable Model 9402/9404	940-0006
15-foot extension cable	UPS Interface Extension	AP9815†
50-ft extension cable	Isolated Extension Cable	AP9825†

Table 2: Additional Cables Offered by APC

† Requires the use of a cable for the operating system being used

Note: Using the wrong cable will cause incorrect operation of MasterSwitch Plus and may damage components.

Setup of the MasterSwitch Plus Expansion Unit

Connecting for On-Demand-Only Use

Overview

Use a connection procedure in this section if you want only to control outlets by using the On, Off, Shutdown and Reboot commands. To connect a single unit see "Procedure for connecting a single unit (on-demand)" on this page. To connect multiple units see "Procedure for connecting multiple units (on-demand)" on page 5.

Note: This configuration requires DTE equipment (a data terminal or a computer running terminal emulation software) for control and configuration of the MasterSwitch Plus unit.

Procedure for connecting a single unit (on-demand)

To connect a single MasterSwitch Plus Expansion Unit for on-demand-only use, perform the following steps in the order given.

1. Connect the power cord of each device to the outlets on the back panel of MasterSwitch Plus.
2. *If you plan to use the graceful shutdown and graceful reboot features of MasterSwitch Plus:*
   a. Check to make sure that the connected server is running PowerChute Plus or other shutdown software.
   b. Connect the simple-signaling cable (not supplied) of each server to the corresponding Basic port on the front panel of the MasterSwitch Plus unit. For example, a server plugged into outlet #3 must be connected to Basic port #3. Table 2, "Additional Cables Offered by APC," on page 2 lists some of the signaling cables supported by MasterSwitch Plus.
3. Connect one end of the supplied smart-signaling cable (APC part number 940-0024) to an available serial port on your DTE equipment and connect the other end of the cable to the Advanced port on MasterSwitch Plus. Set the communications parameters to 2400 bps, no parity, 1 stop bit, no flow control.
4. Connect the power cord of the MasterSwitch Plus unit into a single-phase, 120-VAC, 15-amp outlet.

   Do not exceed the maximum voltage and current ratings listed on the label on the bottom panel of the unit.

Continued on next page

Connecting for On-Demand-Only Use continued

Connecting multiple units (on-demand)

By cascading as many as four MasterSwitch Plus Expansion Units, you can manage power for up to 32 connected devices. To set up MasterSwitch Plus in a cascading configuration, refer to Figure 1 and see "Procedure for connecting multiple units (on-demand)" on this page.

Typical cascaded configuration (on-demand)

Figure 1 shows an example of a cascading setup for an on-demand-only configuration.

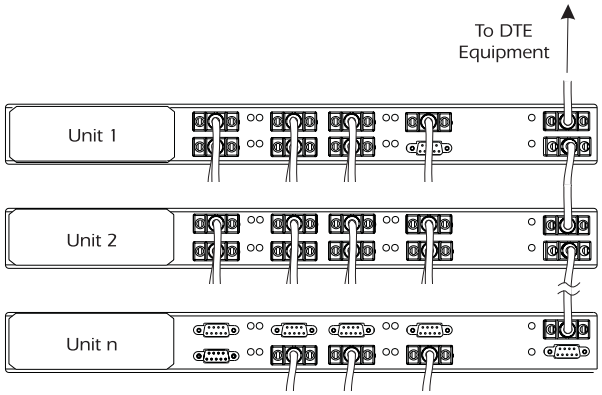

Figure 1: Example of a Cascading Setup for On-Demand-Only Operation

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Connecting for On-Demand-Only Use continued

Procedure for connecting multiple units (on-demand)

To connect MasterSwitch Plus in an on-demand configuration, follow these steps in the order given.

1. Connect the power cord of each device to the outlets on the back panel of MasterSwitch Plus.
2. *If you plan to use the Graceful Shutdown and Graceful Reboot features of MasterSwitch Plus:*
   a. Check to make sure that the connected server is running PowerChute Plus or other shutdown software.
   b. Connect the simple-signaling cable (not supplied) of each server to the corresponding Basic port on the front panel of MasterSwitch Plus. (For example, a server plugged into outlet #3 must be connected to Basic port #3.) Table 2, "Additional Cables Offered by APC," on page 2 lists some of the signaling cables supported by MasterSwitch Plus.
3. Use the supplied daisy-chain cables (APC part number 940-1000) to connect the To UPS port of each MasterSwitch Plus to the Advanced port of the succeeding unit, as shown in Figure 1 on page 4.
4. Connect one end of the supplied smart-signaling cable (APC part number 940-0024) to an available serial port on your DTE equipment and connect the other end of the cable to the Advanced port on the MasterSwitch Plus unit. Set the communications parameters to 2400 bps, no parity, 1 stop bit, no flow control.
5. Connect the power cord of MasterSwitch Plus into a single-phase, 120-VAC, 15-amp outlet.

   Do not exceed the maximum voltage and current ratings listed on the label on the bottom panel of the unit.
6. Continue with "Configuring Addresses of MasterSwitch Plus in a Cascade" on page 10.

Setup of the MasterSwitch Plus Expansion Unit

Connecting for Unattended Shutdown

Overview

Use this connection procedure if you want to be able to shut down servers or other peripherals automatically because of UPS events or Measure-UPS *II* alarms. You will also be able to exercise on-demand control of MasterSwitch Plus outlets. To connect a single unit see "Connecting a single unit (unattended shutdown)" on this page. To connect multiple units see "Connecting multiple units (unattended shutdown)" on page 8.

Note: To use the unattended shutdown feature of MasterSwitch Plus you must have both of the following:

- PowerChute Plus shutdown software installed and running on your servers.
- An APC Smart-UPS®, Matrix-UPS™, or Symmetra™ *Power Array*™.

Connecting a single unit (unattended shutdown)

To connect a single MasterSwitch Plus unit for unattended shutdown, perform the following steps in the order given.

1. Connect the power cord of each device to the outlets on the back panel of MasterSwitch Plus.
2. Connect the signaling cable of each server to the corresponding port on the front panel of MasterSwitch Plus.
   a. *Simple signaling:* Use the simple-signaling cable associated with the server. (See Table 2, "Additional Cables Offered by APC," on page 2.) Connect these cables to the corresponding Basic ports of MasterSwitch Plus. For example, a server plugged into outlet #3 must be connected to Basic port #3.

      Note: The smart signaling feature is not available when you use the on-demand features. If you plan to use the on-demand features, skip Step 2b and proceed to Step 3.

   b. *Smart signaling (for advanced reporting features of PowerChute Plus):* Use the supplied smart-signaling cable (APC part number 940-0024). Connect one end of the cable to the Advanced port of MasterSwitch Plus and connect the other end to the server whose power cord is attached to outlet #1. Proceed to Step 4.

      Note: If you are using smart signaling, Basic port #1 must remain unused.

Continued on next page

Connecting for Unattended Shutdown *continued*

Connecting a single unit (unattended shutdown), continued

3 Connect one end of the supplied smart-signaling cable (APC part number 940-0024) to an available serial port on your DTE equipment and connect the other end of the cable to the Advanced port on MasterSwitch Plus. Set the communications parameters to 2400 bps, no parity, 1 stop bit, no flow control.

4 Connect one end of the supplied daisy-chain cable (APC part number 940-1000) to the To UPS port on the MasterSwitch Plus and connect the other end to the serial port on the UPS.

5 Connect the power cord of the MasterSwitch Plus unit into an outlet on the UPS.

Do not exceed the maximum voltage and current ratings listed on the label on the bottom panel of the unit.

6 If you are using a Measure-UPS II environmental monitor, see "Installing Measure-UPS II" on page 17 of the MasterSwitch Plus Installation Manual.

Continued on next page

Connecting for Unattended Shutdown *continued*

Connecting multiple units (unattended shutdown)

By cascading as many as four MasterSwitch Plus units, you can manage power for up to 32 connected devices. To set up MasterSwitch Plus in a cascading configuration, refer to Figure 2 and see "Procedure for connecting multiple units" on this page.

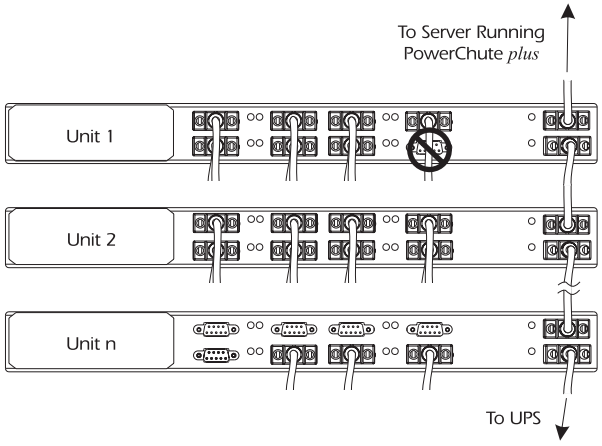

Figure 2: Example of a Cascading Setup for Unattended Shutdown

Procedure for connecting multiple units

To configure multiple MasterSwitch Plus units for unattended shutdown, perform the following steps in the order given.

1 Connect the power cord of each device to the outlets on the back panel of MasterSwitch Plus.

2 Connect the signaling cable of each server to the corresponding port on the front panel of MasterSwitch Plus.

a *Simple signaling:* Use the simple-signaling cable associated with the server. (See Table 2, "Additional Cables Offered by APC," on page 2.) These cables must be connected to the corresponding Basic ports of MasterSwitch Plus. (For example, a server plugged into outlet #3 must be connected to Basic port #3.)

Note: The smart signaling feature is not available when you use the on-demand features. If you plan to use the on-demand features, skip Step 2b and proceed to Step 3.

b *Smart signaling (for advanced reporting features of PowerChute Plus):* Use the supplied smart-signaling cable (APC part number 940-0024). Connect one end of the cable to the Advanced port of MasterSwitch Plus and connect the other end to the server whose power cord is attached to outlet #1.

Continued on next page

Connecting for Unattended Shutdown *continued*

Procedure for connecting multiple units, continued

Note: Smart signaling is only available on Unit 1. The remaining units must use simple signaling for outlet #1.

3 Connect one end of the supplied smart-signaling cable (APC part number 940-0024) to an available serial port on your DTE equipment and connect the other end of the cable to the Advanced port on MasterSwitch Plus. Set the communications parameters to 2400 bps, no parity, 1 stop bit, no flow control.

4 Using the supplied daisy-chain cables (APC part number 940-1000), connect the To UPS port of each MasterSwitch Plus unit to the Advanced port of the succeeding unit, as directed in Figure 2: "Example of a Cascading Setup for Unattended Shutdown" on page 8.

5 Connect one end of a daisy-chain cable (APC part number 940-1000) to the To UPS port on the MasterSwitch Plus and connect the other end to the serial port of the UPS.

6 Connect the power cord of each MasterSwitch Plus unit into an outlet on the UPS.

Do not exceed the maximum voltage and current ratings listed on the label on the bottom panel of the unit.

7 Continue with "Configuring Addresses of MasterSwitch Plus in a Cascade" on page 10.

Setup of the MasterSwitch Plus Expansion Unit

Configuring Addresses of MasterSwitch Plus in a Cascade

Procedure for configuring addresses

If you have multiple MasterSwitch Plus units connected in a cascading configuration, perform the following steps in the order given.

1. *If your DTE equipment is a server:* Disable PowerChute, UNIX Respond, or any other service that may be using the serial port of the server.
2. Run a terminal emulator such as Window HyperTerminal. Configure the appropriate serial port with the following settings: 2400 bps, no parity, 8 data bits, 1 stop bit, and no flow control.

   Note: Some terminal emulators such as HyperTerminal require that you disconnect and reconnect in order for the new serial settings to take effect.
3. From your server, press ENTER (RETURN on some keyboards). The Enter Password prompt appears.

   Note: All user input is terminated by ENTER.
4. Enter **apc**. The Main menu appears.
5. From the Main menu, select Unit Properties.
6. From the Unit Properties menu, select Address and set the value.

   Note: The address of this first MasterSwitch Plus unit is simply the sum of the MasterSwitch Plus units in your configuration. For example, if there are four units in your configuration, set the address to 4.
7. Return to the Main menu by pressing ESC.
8. Connect to the next MasterSwitch Plus unit by selecting Units from the Main menu.
9. From the Unit Properties menu, select Address and set the value to one less than the preceding MasterSwitch Plus unit. For example, if the address of the previous unit was set to 4, set the address of this unit to 3.
10. Return to the main menu by pressing ESC.
11. Repeat steps 9–11 for the remaining units.
12. Exit the current MasterSwitch Plus menu system by entering **Q** from the Main menu. The Main menu on the preceding MasterSwitch Plus appears. Continue entering **Q** until you have exited all MasterSwitch Plus menus.

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